Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

MICROSCOPY.[1]

Cytological Methods.—*Lysol.*—Friedrich Reinke[2] calls attention to the antiseptic *lysol* (a solution of Cresol in neutral soap) as a valuable reagent for the nucleus. *It dissolves chromatin,* leaving other elements intact; and it brings out a new element in the nucleus, to which the author gives the name, *œdematin.* This substance appears in the form of granules within the linin mesh-work of the nucleus, remaining after the chromosomes have been completely dissolved. A small salamander larva, for example, left in about 50 ccm. of 10 per cent *lysol* for from 6 to 24 hours, will have its chromatin dissolved, and its œdematin granules rendered visible.

Œdematin shrinks greatly in such reagents as alcohol, chromic acid, and osmic acid, and only now and then appears as a *fine* granular precipitate. In lysol, on the contrary, it swells up under the action of one constituent (the soap solution) and is coagulated by the cresol and thus made distinct. Œdematin corresponds, in part at least, to Heidenhain's *oxychromatin,* Pfitzner's *parachromatin,* and Frank Schwarz's *paralinin.* Reinke remarks that this substance is absent, or nearly so, from ova and spermatozoa. It is well developed in most somatic cells; e. g., epithelium, connective tissue, leucocytes, etc.

In the action of lysol, three stages are to be distinguished: (1) solution of the chromatin; (2) appearance of œdematin granules; and (3) further changes of the œdematin.

The time required to reach the second stage varies with the tissue. The epithelium of the salamander larva requires at least six hours. In connective tissue the second stage is quite short and transitory.

The method does not admit of permanent preparations.

Neutral versus Acid Fixatives for Nuclei.[3]—Professor Altmann claims that the usual acid reagents, among which he reckons sublimate, platinum-chloride, gold-chloride, etc., disturb nuclear structure, reducing the chromatic elements to compact, structureless masses. On the other hand, *neutral* reagents, among which are placed osmic acid, and a mixture of chromic acid with a molybdenum salt, preserve the structure of nuclei. At first sight, and under low powers, nuclei present a homogeneous appearance. But this homogeneity is not real; for structure is there and it can be made out, although with some difficulty. Cell nucleus and cell body, although chemically different, exhibit the same morphological structure, consisting of *granula* and *inter-granular net-work.* Altmann was able to demonstrate the granular structure of the chromosomes.

---

[1] Edited by C. O. Whitman, University of Chicago.

[2] Anat. Anz. VIII, Nos. 16 and 18, 1893, and Arch. f. m. Anat. XLIII, No. 3, 1894.

[3] Altmann. Verhandl. d. Anat. Ges. Mag., 1893, p. 50.

Heidenhain (Arch. f. mik. Anat., XLIII, 3, p. 428) maintains, in opposition to Altmann, that with sublimate the granula and net-work are demonstrable; and further, that acid reagents are, after all, superior to neutral reagents.

Iron-hæmatoxylin and Centrosomes.[4]—Iron-hæmatoxylin has been used by Heidenhain in the study of the centrosomes and astrospheres.

The original process, which is also repeated in the new modification, was the following:

Fine sections of preparations in sublimate are fixed on the slide by means of distilled water, dehydrated with alcohol containing iodine, and exposed to a 1½ per cent solution of ammonio-ferric alum.[5] The slide is next washed with distilled water and then placed in a 1½ per cent solution of *Hœmatoxylinum purissimum* (Grübler). The over-stained sections are then again treated with the iron-alum solution used before, in order to remove the superfluous color. The process of extraction must be followed under the microscope and continued until the cell protoplasm is completely decolorized, and the chromatin net-work of the nucleus becomes clear. One may interrupt the differentiating process any moment by washing with fresh water, and then continue it. When the extraction of the stain has been carried far enough, the slide should be washed fifteen minutes in fresh water and mounted in the usual way in balsam.

Heidenhain noticed that when the differentiation was effected quickly the centrosomes were stained in greater number than when the process occupied a long time. It seemed, therefore, that the defects of the method might be corrected if a way could be found by which the decoloring process could be hastened. How could the cytoplasm be freed from the stain in the shortest time? Assuming that a stain acts by chemical combination, it seemed probable that the process of extraction might be hastened, if the receptivity of the cytoplasm could be at least partially saturated before the application of the hæmatoxylin. Accordingly, Heidenhain selected as *preliminary* stains

---

[4] Arch. f. m. Anat. Vol. XLIII, part 3, p. 434.

[5] The crystals of this salt should be clear violet in color; if they are yellowish and opaque, they have suffered from exposure to air and are no longer fit for use. The solution must be made cold, as the salt is decomposed by heat.

(" Vorfarben ") such as affect the cytoplasm and the nucleus, and leave the centrosomes unstained. Thus the chemical affinities of the centrosomes for the hæmatoxylin would remain at full strength, while those of the cytoplasm and nucleus would be more or less saturated, and to the same extent weakened for the hæmatoxylin. In this way the process of extraction was brought under some control, and the method greatly improved.

Stains reached in this way are called " subtractive."

Bordeau R., Anilin blue and Methyl-eosin were employed as preliminary stains. Bordeaux R. proved to be the best. In preparations that have been successfully differentiated as to the centrosomes, the nucleus and its chromatin are almost colorless, so that the centrosome may be easily studied, even when it lies behind the nucleus. The *nucleoli* remain strongly stained.

The Chromatin.—Heidenhain shows that there are two kinds of chromatin to be distinguished, namely: an *oxychromatin* brought out by *acid* anilin stains (e. g., Rubin S.), and a *basichromatin* which is brought out by *basic* anilin stains (e. g., Methyl green). The " basichromatin " is the chromatin of Flemming and authors in general.

The differentiation of the two chromatins can only be accomplished when the nucleus is exposed at the same time to both *acid* and *basic* anilin colors, as is the case when Biondi's solution and Ehrlich's triacid are used.

If one mixes ammonium vanadate with hæmatoxylinum pur (Grübler) a blue stain is obtained which stains *cytoplasm* and *oxychromatin* strongly, while the *basichromatin* is often left nearly colorless.

The two chromatins probably differ only in the amount of phosphorus present, basichromatin containing more, oxychromatin less.

The Egg-Centrosome.[6]—Dr. H. Mertens finds that the so-called " yolk-nuclei," so generally known in both vertebrate and invertebrate eggs, represent, in the case of the mammals and birds, two very different elements. Sometimes they are chromatin granules eliminated from the nucleus; at other times they represent centrosomes. The identification of these bodies with the centrosome is the point of chief interest. The method employed was as follows: The material was prepared in Hermann's fluid. Three precautions were observed: (1) The object must remain a long time in the fluid—for weeks or even months. (2) Transfer to pyroligneous acid (1–3 ds.). (3) Wash thoroughly in running water.

The preparations were imbedded in celloidin and stained with safranine.

---

[6] H. Mertens, Arch. de Biologie, XIII, 3, '94, p. 394.